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# MODERN MANUFACTURING

## A PARTNERSHIP OF IDEALISM AND COMMON SENSE

### The Annals

VOLUME LXXXV

SEPTEMBER, 1919

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THE AMERICAN ACADEMY OF POLITICAL AND SOCIAL SCIENCE  
36TH STREET AND WOODLAND AVENUE  
PHILADELPHIA  
1919

KRAUS REPRINT CO.  
Millwood, New York  
1975

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## EUROPEAN AGENTS

ENGLAND: P. S. King & Son, Ltd., 2 Great Smith Street, Westminster, London, S. W.  
FRANCE: L. Larose, Rue Soufflot, 22, Paris.  
GERMANY: Mayer & Müller, 2 Prinz Louis Ferdinandstrasse, Berlin, N. W.  
ITALY: Giornale Degli Economisti, via Monte Savello, Palazzo Orsini, Rome.  
SPAIN: E. Dossat, 9 Plaza de Santa Ana, Madrid.

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KRAUS REPRINT CO.

A U.S. Division of Kraus-Thomson Organization Limited

Printed in U.S.A.

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## Who is Who Among Contributors

DANIEL M. BATES, General Manager, Lewiston Bleachery and Dye Works, Lewiston, Me., is one of a younger group of industrial managers who may be said to be the joint product of a modern engineering education and technical training in the Scientific Management school. After being graduated from the Massachusetts Institute of Technology he entered the employ of the John Bancroft's Sons Co., Wilmington, Del., and there gained the experience which qualified him for his present post. During the war he served as a major in the Ordnance Corps taking part in organizing several different divisions of its work. He became Ordnance Officer of the 14th division.

Mr. Bates may be classified as a conservative progressive. He is of the unusual type of manager who sees just as much chance for improvement in the front office as in the shop.

GEORGE L. BELL, Impartial Chairman of Industrial Relations of the Men's and Boys' Clothing Industry of New York City (representing both employers and employes), was during 1914-1918 attorney and executive officer State Commission of Immigration and Housing of California. He is a graduate of the University of California and Harvard Law School. During the war he was Executive Secretary of the War Labor Policies Board. He has been active during the past few years in the campaign to stabilize conditions and to promote efficiency in the several branches of the clothing industry. It is to men of Mr. Bell's education, training and attitude that Industrial America looks for leadership.

JAMES M. BOYLE, Consulting Engineer, associated with Sanderson & Porter, New York, is Vice-President of the Fairmont Mining Machinery Company, Vice-President of the West Virginia Metal Products Corporation and advisory engineer to the President of the Consolidation Coal Company. He has had an extensive experience in the municipal utility field. His war record included the development of a very ingenious plan for anti-aircraft gunnery.

D. A. BROWN, President of the Consumers Ice Co., Detroit, Michigan, is a broad-gauge business man who takes an interest in civic affairs. For many years he has seen questions affecting the relations of capital and labor as the inner heart of the industrial problem. Very soon after Mr. Brown became the head of the company enjoying a monopoly of the ice distributing function in Detroit he instituted a policy of allowing the "men" a share in the management. The "workers" now have eight of the fifteen who sit on the Board of Directors.

JOHN M. BRUCE, Vice-President and General Sales Director, Remington Typewriter Co., has had an extensive experience in the organization and operation of large-scale sales forces. Among the companies with which he has been associated are the American Tobacco Co., the Beechnut Packing Co., Libby, McNeill & Libby and the Winchester Repeating Arms Co.

Mr. Bruce has specialized in the study of Scientific Management and its application to the problems of distribution. His attitude toward the salesman and his job is in some respects revolutionary.

WALTER S. CARPENTER, JR., Vice-President of E. I. du Pont de Nemours & Company in charge of the work of its Development Department, has had a number of years' experience in the investigation of problems dealing with the advancement of that company's interests. He left Cornell University and joined the company in 1909. He spent nearly a year as an assistant in the Resident Engineer's office at two of the company's plants. He spent the next two years in Chile, where the company has large interests in the nitrate fields and later spent some time in Europe investigating business problems for the company.

For the next seven years he was a member of the staff of the Development Department, becoming in time Assistant Director, Director and Vice-President in charge. During his term of service he was in constant contact with the numerous business problems, the solution of which helped the company to maintain its position as a manufacturer of munitions and to undertake an enlarged peace-time commercial business.

JOHN J. KERR CASKIE, prior to assuming his present position as Executive Assistant to the President and Chairman of the Philadelphia Rapid Transit Company, was a practicing attorney in New York City, and for five years was with the Interboro Rapid Transit Company and its affiliated companies, particularly engaged in valuation, franchise and tax matters. He resigned his position to go to the National War Labor Board and was Examiner in a number of matters before that body. Among the matters assigned to him was that of the Philadelphia Rapid Transit Company.

Mr. Caskie, before he was admitted to the Bar, spent a number of years as newspaper reporter, ranchman and in general business in the new Republic of Mexico where he made a special study of Latin-American relations. After leaving Mexico he spent three years at work in the libraries of the universities of Europe before he came back to New York to be admitted to the Bar.

At various times he has worked as a miner, cowboy and factory hand.

B. PRESTON CLARK, Boston, Mass., is Vice-President of the Plymouth Cordage Co. and a member Executive Committee of the U. S. Smelting Refining and Mining Co. After graduating from Amherst he worked in a cordage mill and eventually took charge of the binder and twine mills owned by the McCormick Harvesting Co. and acted as their buyer for many years. He retired as Executive Manager in 1903. Mr. Clark takes a deep and effective interest in the social developments of the times. He had taken an active part in social work in Boston for over forty years.

JOSEPH E. COHEN, born in Baltimore, 1882, received a common school education, and was graduated from Central High School and Philadelphia School of Industrial Arts. He became a compositor by occupation and has been a member of the Typographical Union since 1902. He has been active in its proceedings; likewise in those of the Socialist Party—belonging to the moderate wing;

several times delegate to its state and national conventions, serving as Chairman of Resolutions Committee. He was made a member of the Philadelphia Mayor's Food Commission in 1917 and Chairman of the Joint Legislative Committee for Labor Legislation in Pennsylvania in 1919.

Mr. Cohen is the type of labor leader who is today furnishing more of a philosophical background to the American labor movement.

HOWARD COONLEY, President, Walworth Manufacturing Co., Boston, Mass., is also President and director of the Coonley Manufacturing Co., Cicero, Ill.; a director of the Advance Rumely Co., La Porte, Ind.; of B. F. Avery & Son, Louisville, Ky.; Link-Belt Co., Chicago, Indianapolis and Philadelphia; the Rivett Leather & Grinder Co., Faneuil, Mass.; and the Second National Bank of Boston. He is a member of the Executive Committee of the Associated Industries of Massachusetts and a director of the Boston Chamber of Commerce.

During the war Mr. Coonley attained a national reputation as an organizer through the work done for the Emergency Fleet Corporation of the U. S. Shipping Board as Vice-President in charge of administration. Among other duties he had charge of the finances involved in operating our 200 shipyards and the related industrial establishments.

Well-balanced, cultivated, of genial approach, Mr. Coonley is a man who gains his ends quite as much through a quick establishment of confidence as by his quiet force and ability.

WILLIAM B. DICKSON, Chairman of the Board and Vice-President of the Midvale Steel and Ordnance Co., began his career as a manual worker in the Homestead Steel Works. He became one of Carnegie's "junior partners" and was active in the management of the U. S. Steel Corporation during its first decades. The years 1911-1915 were spent in retirement on a New Hampshire farm. Called into active service by the war, he is given the principal credit for causing the Midvale Company to abandon its well recognized and long continued opposition to the organization of its workers. The system adopted—falling in the class of company unions—is described in Mr. Wilson's paper.

A. LINCOLN FILENE is by calling a merchant and acts as Treasurer and General Manager of William Filene Sons Co., Boston. He brings to bear so much idealism and imagination on the day's work that one is tempted to call him a super-merchant. He has given much attention to welfare and education of his employes through a coöperative association. He is also a member of the Board of Managers National Society for Promotion of Industrial Education, of the Massachusetts State Board of Education, of the executive board Bureau Vocational Guidance of Harvard University, of the Executive Board and Board Managers N. E. A., the Vocational Education Com. N. E. A., and Advisory Com. Boston High School of Commerce; of the Overseers Com. for div. of edn. at Harvard College; and chairman of the daylight saving movement Chamber Commerce U. S. A., Boston Chamber of Commerce.

HENRY L. GANTT, Consulting Engineer, has, since 1887, when he joined the staff of the late Frederick W. Taylor, been active in developing the art of management.



He recognized long ago, the ineffectiveness of the "efficiency" of the workman as a cure-all, and has since devoted the major part of his efforts to producing harmonious coöperation between employer and employee. His article in this volume represents the results of his latest efforts.

In connection with Mr. Taylor, he worked for the Midvale Steel Company, and the Bethlehem Steel Company. Subsequently he was connected with numerous large concerns; today he is connected with the Ingersoll-Rand Co., the J. H. Williams Drop Forge Co., and others.

This country may properly take great satisfaction in having produced engineers of industry whose leadership is recognized the world over. Among these guides to the new industrial day Mr. Gantt stands in the very fore-front.

HOLLIS GODFREY, LL.D., Eng.D., President, Drexel Institute, Philadelphia, is an engineer and educator who attacks the problems of industry with energy, conspicuous ability and unusual versatility. Dr. Godfrey has first hand knowledge of industrial processes through having worked through both a machine shop and a paper mill. He was associated with the late Frederick W. Taylor the "Father of Scientific Management" and in his capacity as consulting engineer has assisted in the reorganization of a number of important industrial undertakings. During the war he was a member of the Advisory Board of the National Council of Defense. Dr. Godfrey visions an industry brought fully abreast of the march of modern science and continually re-vitalized through scientific research.

ARTHUR A. HAMERSCHLAG is President of the Carnegie Institute of Technology, Pittsburg, and consulting engineer on industrial matters with offices in New York City. In 1903 he began the development of the Carnegie Technical Schools which today have 3,500 students and an investment of about \$5,000,000. Dr. Hamerschlag made a unique and invaluable contribution to the conduct of the war while acting as Director of the Bureau of Industrial Research under Major General George W. Goethals, Director of Purchase, Storage and Traffic.

H. K. HATHAWAY, Consulting Engineer in Management, is a leading exponent of Scientific Management having been a close associate of the late Frederick W. Taylor. A graduate of the Williamson Trade School, Mr. Hathaway served his apprenticeship at the Midvale Steel Works and then went to the Tabor Mfg. Co. to introduce the Taylor methods. This work was done in association with Carl G. Barth and Mr. Taylor himself. Mr. Hathaway later became Vice-President of the Tabor Co.

During the war Mr. Hathaway—first as a captain and later as lieutenant colonel—made a conspicuous record. His work in connection with the organizing of the Supply Division of the Ordnance Department and later on the organization of the Ordnance Department itself and still later as the head of the Ordnance Supply Department in France, each constitute brilliant advancements in the management field. While Mr. Hathaway looks at industry pretty much through the worker's eyes and with a worker's interest he thrives himself on doing a full day's work and never apologizes for asking others to do the same.

J. C. HECKMAN, Consulting Engineer for Larkin Co., Buffalo, N. Y., is a good combination of the so-called "hard-headed business man" and technically trained engineer. Born at Phillipsburg, N. J., he is educationally the product of the Germantown Boys' Grammar School, the Philadelphia Central Manual Training School, Lafayette College, and Massachusetts Institute of Technology. After working during the summers of his college course he entered the employ of Larkin Co. in 1899 and gradually assumed charge of all engineering and technical matters for that company including design and construction of buildings, machinery, development of new processes and direction of large research activities. In 1909 he took charge of Buffalo plant with title of Superintendent.

Mr. Heckman early in the war was commissioned as a major in the Ordnance Department and played an important part in organizing the Supply Division. He was later placed in charge of the Construction and Operating Sections. In 1918 he was promoted to a full colonelcy and after the armistice was made chief of the Supply Division. Judged by both the amount accomplished and the high level of that accomplishment this was a very distinguished war record.

For five years Mr. Heckman has been Chairman of the Technical Advisory Board of the Associated Manufacturers and Merchants of New York State.

EDWARD D. JONES, Ph.D., at present Federal Agent in Employment Management for Federal Board for Vocational Education, was professor in Economics at the University of Michigan from 1901 to 1918. He is the author of *The Administration of Industrial Enterprise; Investments*; etc. During the War Dr. Jones was attached to the Committee on Education and Special Training of the General Staff of the Army and Director of Course Materials of Employment Management Section of the War Industries Board. He is an inspiring teacher, writer and lecturer on the public platform.

JOHN LEITCH is a mechanical engineer living in Philadelphia who has been more and more specializing in introducing a type of shop organization patterned after the U. S. Government with a Senate, a House and a Cabinet. His plan has been widely used and both the plan and the author highly commended. Mr. Leitch has a magnetic personality and a peculiar ability to gain quickly the confidence of those with whom he works. He is the author of technical papers presented before the American Society of Mechanical Engineers and an unusual book *Man to Man* in which he describes *Industrial Democracy*, the name he has given to his plan.

JACOB M. MOSES is a lawyer by profession and acts as impartial chairman for two of the largest men's and boys' clothing manufacturing plants in Baltimore. He is a graduate of Johns Hopkins University and of the University of Maryland. He was a member of the Maryland State Senate (1900-1904). In his practice of the law he has specialized in industrial matters and is the author of a valuable monograph on *The Law Applicable to Strikes*. Judge Moses has lived his life so as to command the confidence of both sides of the industrial struggle.

GEORGE W. NORRIS, after graduating from the universal preparatory school of journalism, practiced law in Philadelphia for eight years, and in 1894 became a member of the investment banking firm of Edward B. Smith & Co., where he had about eighteen years' experience in railroad and industrial financing. He retired from business in the fall of 1911, and was almost immediately afterwards drafted by Mayor Blankenburg for four years' service as Director of the Department of Wharves, Docks and Ferries in the Philadelphia municipal administration. The following year he was again drafted, this time by the Federal Administration, to serve as Farm Loan Commissioner in charge of the establishment and operation of the Federal Farm Loan System, which in the course of a little over two years has sold nearly \$300,000,000 bonds, and loaned a like amount to the farmers of the country.

HENRY T. NOYES, Rochester, N. Y., in answer to our request for material about himself, said, "All I would care to have you put down is that I am Secretary of Art in Buttons." As a matter of fact, he is a distinguished American manufacturer who has done more things first—and done them well—than almost any other manufacturer with whom the editor is acquainted. The button-making plant over which Mr. Noyes presides is a model plant in the best sense of that word. Further, Mr. Noyes is a good citizen and as president of the Rochester Chamber of Commerce and in other relationships has rendered conspicuous service to his city and his country.

J. E. OTTERSON, President of the Winchester Repeating Arms Co., New Haven, Conn., is one of a group of officers trained in the Construction Corps of the U. S. Navy who have taken important posts in private industry and made a deep impression on our manufacturing methods. Mr. Otterson was particularly successful in quickly reaching a high production of small arms during the war. He was an important member of the committee of manufacturers who standardized this class of munitions. He is President of the Taylor Society.

HARLOW S. PERSON, Managing Director of the Taylor Society (society to promote the science of management), Engineering Societies Building, 29 West 39th St., New York City, is an economist who has specialized on the art of organization. For fifteen years as Director of the Amos Tuck School of Business Administration of Dartmouth College, he took a conspicuous part in the development of a technique for American industry. His contributions to the literature of Scientific Management have done much to interpret the movement. During the war Dr. Person served as a major first in the Organization and Methods Section of the Ordnance Dept. and later in the Inspector General's Office. He was one of the organizers of the service by which various colleges and universities gave specialized training in army stores work.

EDWIN G. RUST, Industrial Engineer, Philadelphia, has held a number of important administrative posts in the iron and steel industry. Educated as a mechanical engineer at Lehigh University he passed through the various grades of employment to machinist, master mechanic, draftsman, chief engineer, assistant manager and president. He has spent twenty years in close contact

with the fundamental problem of American industrial development. During the war he assisted in the work of developing the nation's boiler manufacturing capacity in the interest of the Emergency Fleet Corporation.

N. I. STONE, Labor Manager for Hickey-Freeman Co., clothing manufacturers, Rochester, N. Y., is a statistician plus. He is interested in the application of the factor of precision to the study of industrial processes. As he has at times officially represented "the unions" and at present represents the employer in a union shop his views are especially significant. During 1909-1912 he was chief statistician United States Tariff Board and during 1913-1914 chief statistician Wage Scale Board, Dress and Waist Industry of New York City.

FRANK J. WARNE of Washington, D. C., might well be called a consulting economist and statistician. Since the railway brotherhoods undertook their concerted wage movements in 1910, Dr. Warne has represented them in nearly all of their contests before boards of arbitration appointed by the President of the United States. These arbitrations have necessitated the critical examination of the financial, corporate and operating methods of the railroads. In addition, he is the consulting expert to Public Service Commissions, other labor unions, and large corporations engaged in rate cases before the Interstate Commerce Commission. During the war he rendered service to the Bureau of War Risk Insurance of the Treasury Department, to the Emergency Fleet Corporation of the United States Shipping Board, and is at present Manager of Industrial Relations and a member of the Board of Directors of the United States Housing Corporation.

Dr. Warne's point of view on social and economic problems is tersely summarized by *The Outlook* as follows:

"He is one of that class of students of social and industrial conditions whom science and humanity combined have produced in America, and who are distinctly a product of a democratic country and a scientific age—that is, of a period in which love of humanity and love of truth are mingled in something like equal proportions in its best teachers."

EDWARD WILSON is a patternmaker in the employ of the Midvale Steel & Ordnance Co. His employers say that he is an unusually skillful patternmaker, regular in his work, dependable and accurate. His fellow patternmakers have shown their opinion of him by twice electing him as their Division Representative. The other Division Representatives have gone one step further and twice elected him as their Chairman.

For many years, Mr. Wilson has been active in politics, and has always stood for civic righteousness. His civic creed is very simple—so simple in fact that for twenty years, in division, ward and city his name has stood for just one thing i. e. the regeneration of Philadelphia from boss rule. For the past two years, he has used his inclination and experience toward the development of industrial righteousness in the plant where he has spent his industrial life.